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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------|
| 10/709,971 | 06/10/2004 | Ryoji Kaneko | SIMTEK6915 | 3970 |
| 25776 | 7590 | 05/27/2005 | | |
| ERNEST A. BEUTLER, ATTORNEY AT LAW 10 RUE MARSEILLE NEWPORT BEACH, CA 92660 | | | | |
| | | | EXAMINER PRESTON, ERIK D | |
| | | | ART UNIT 2834 | PAPER NUMBER |

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/709,971 | Applicant(s) KANEKO, RYOJI | |
| | Examiner Erik D. Preston | Art Unit 2834 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>08/30/2004</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

Claims 5, 11, 16 & 22 are objected to because of the following informalities: An electric machine that has two or three brushes would not meet the requirements of claims 4, 10, 15 & 21. To satisfy the equation given in the preceding claims, the machine must have the same number of magnets as it does brushes. Appropriate correction is required.

Claim 7 objected to because of the following informalities: In the 2nd line of the claim, the phrase "...wherein the each of the 12 commutator segments..." should be changed to "...wherein the each of the 12 commutator segments..." Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 & 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Egawa et al. (US 6819025).

With respect to claim 1, Egawa teaches a DC electric machine (Fig. 1) comprising a shaft (Fig. 1, #33a) rotatable about an axis, a plurality of circumferentially

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spaced permanent magnets (Fig. 1, #35) disposed around said axis, a plurality of circumferentially spaced magnetic pole teeth (Fig. 1, #36) facing said permanent magnets, electrical coils (Fig. 1, #37) wound on said magnetic pole teeth, a plurality of circumferentially spaced commutator segments (Fig. 1, #38) having clearances between adjacent edges to which ends of said coil windings are connected, and a plurality of brushes (Fig. 1, #39) in sliding contact with said commutator segments for the transfer of electrical energy between said coils and said brushes, said coil ends being connected to selected of said commutator segments so that electrical energy flows through adjacent coil pairs in the same circuit in opposite directions upon rotation of said machine.

With respect to claim 2, Egawa teaches the electric machine of claim 1, wherein the coil ends of adjacent pairs are connected to commutator segments that are spaced from each other by at least two commutator segments that are not connected to any coil winding (as seen in Fig. 4).

With respect to claim 3, Egawa teaches the electric machine of claim 1, wherein both ends of the winding of each coil winding are connected to the commutator segments, across each other and across one end winding of an adjacent coil winding (as seen in Fig. 4).

With respect to claim 12, Egawa teaches the electric machine of claim 1, wherein the machine comprises an electric motor (Abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-11 & 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6819025) in view of Cros et al. (US 6891304).

With respect to claims 4, 5, 10 & 11, Egawa teaches the electric machine of claim 1, wherein the number of permanent magnets is six, the number of magnetic pole teeth is eight, and the number of brushes is six, but it does not teach the number of commutator segments to be equal to twice the number of magnetic pole teeth. However, Cros teaches an electric machine (Fig. 5) with four permanent magnets, six magnetic pole teeth, twelve commutator segments, and four brushes. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the electric machine of Egawa in view of the electric machine as taught by Cros because it decreases the cost, weight, and size of a motor while at the same time offering a higher efficiency (Cros, Col. 3, Lines 38-45).

With respect to claims 6, 13 & 17, Egawa in view of Cros teaches the electric machines of claims 5 & 16, Egawa teaches the electric machine of claim 12, and Egawa teaches that the coil ends of adjacent pairs are connected to commutator segments that are spaced from each other by at least two commutator segments that are not connected to any coil winding (as seen in Fig. 4).

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With respect to claims 7 & 18, Egawa in view of Cros teaches the electric machines of claims 6 & 17, wherein each of the 12 commutator segments is connected in parallel to another commutator segment spaced six segments from it (as seen in Cros, Fig. 5).

With respect to claims 8 & 19, Egawa teaches the electric machine of claim 2, Egawa in view of Cros teaches the electric machine of claim 13, and Cros teaches a second series of coil windings (Fig. 9, #1.3-5.3) formed around each of the pole teeth and connected to the commutator segments that are not connected to the first mentioned series of coil windings (Fig. 9, #1.1-5.1).

With respect to claims 9 & 20, Egawa in view of Cros teaches the electric machines of claims 8 & 19, wherein electrical energy flows through adjacent coil pairs in the second series of coils in opposite directions upon rotation of said machine.

With respect to claim 14, Egawa in view of Cros teaches the electric motor of claim 13, and Egawa teaches that both ends of the winding of each coil winding are connected to the commutator segments, across each other and across one end of the winding of an adjacent coil winding (as seen in Fig. 4).

With respect to claims 15,16,21 & 22, Egawa in view of Cros teaches the electric machines of claims 9 & 13, Egawa teaches the electric machine of claim 12, and Cros teaches that the number of permanent magnets is four, the number of magnetic pole teeth is six, the number of commutator segments is twelve, and the number of brushes is four (as seen in Fig. 5).

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2526690, US 4292559, US 5934600 & US 2004/0021394.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



05/18/2005



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